

NPDGamma Fall 2000 Test Run Preliminary Asymmetry Results

January 5, 2001

Target	Runs	# of 8-steps
Chlorine	3293 - 3350 3355 - 3382	64476
Cadmium	3494 - 3576	62173
Lanthanum	3590 - 3596 3601 - 3615 3617 - 3640 3666 - 3690 3695 - 3739	85522

Used time bins 20-80, which corresponds to time of flight 8 ms - 32 ms, or energy 40 meV to 2.5 meV, or $\lambda = 1.43 \text{ \AA} \text{ to } 5.72 \text{ \AA}$.

(Vesna *et al.*: $\lambda_{average} = 2.7 \text{ \AA}$.)

Detector offsets.

Values from shutter closed runs 3740 & 3741.

Channel	Offset (ADC counts)	Typical peak signal
0 (up)	272	11000
1 (right)	116	5000
2 (down)	84	3000
3 (left)	220	12000

Raw Asymmetries

Target		fit	average
Cl	U/D	8.3 ± 2.1	8.9 ± 2.1
	L/R	1.2 ± 2.1	2.2 ± 2.1
Cd	U/D	-0.4 ± 1.6	0.2 ± 1.7
	L/R	3.1 ± 1.6	3.6 ± 1.7
La	U/D	4.1 ± 2.3	4.9 ± 2.3
	L/R	-1.5 ± 2.2	0.1 ± 2.2

All values are $\times 10^{-6}$.

“fit” value is from gaussian fit to distribution of 8-step asymmetry values.

“average” is from averaging the 8-step values, discarding values outside the range $[-0.005, 0.005]$ (20, 35, 12 discards for the three targets).

Preliminary Physics Asymmetries

Target		A_γ	Vesna, et al.
Cl	U/D	-23.6 ± 6.0	-27.8 ± 4.9
	L/R	-3.4 ± 5.9	
Cd	U/D	1.2 ± 4.6	-1.3 ± 1.4
	L/R	-8.8 ± 4.6	
La	U/D	-11.4 ± 6.4	-17.8 ± 2.2
	L/R	4.2 ± 6.1	

All values are $\times 10^{-6}$.

V. A. Vesna *et al.*, JETP Lett. **36**, 209 (1982).

A_γ from gaussian fits to 8-step asymmetries.

- Corrected for detector offsets, acceptance ($\cos \theta$), neutron polarization.
- Not corrected for spin flipper efficiency, beam dropouts (proton current cut).